In the Claims:

Please cancel claim 10.

Please amend claims 1, 3-5, 7, 11, 13-16 and 18 as set forth below in the "Listing of Claims".

Please add new claims 19-24 as set forth in the Listing of Claims below.

LISTING OF CLAIMS

Claim 1 (Currently Amended): A plasma processing unit comprising:

a processing container whose inner pressure can be reduced,

a first electrode arranged in the processing container, for placing a substrate to be processed thereon,

a process gas supplying unit that supplies a process gas into the processing container,

a tubular supporting part that supports the first electrode, the tubular supporting part forming a space together with the first electrode, and

a high-frequency electric power supplying part arranged in the space, including a first high-frequency electric power source that outputs first high-frequency electric power having a first frequency ~~in a VHF band~~,

~~a matching unit electrically connected to the high-frequency electric power source and the first electrode for impedance matching, and~~

~~a transmission line that transmits the high-frequency electric power from the high-frequency electric power source to the matching unit,~~

wherein ~~a substrate to be processed is adapted to be arranged in the processing container,~~ the first high-frequency electric power transmitted from the first high-frequency electric power source to the first electrode is adapted to generate plasma in such a manner that the substrate to be processed can undergo a plasma process by means of the plasma, and ~~the transmission line has a length shorter than a length wherein a~~

~~resonance state of a third harmonic wave of the high-frequency electric power may be generated~~

the high-frequency electric power supplying part further includes: a first matching unit for impedance matching of the first frequency, and a transmission line that transmits the first high-frequency electric power from the first high-frequency electric power source to the first matching unit.

Claim 2 (Withdrawn): A plasma processing unit according to claim 1, wherein the length of the transmission line is shorter than $\lambda/2$, λ being a wavelength of the third harmonic wave of the high-frequency electric power, and with respect to the third harmonic wave of the high-frequency electric power, an output terminal of the high-frequency electric power source and an input terminal of the matching unit are electrically short-circuited ends, respectively.

Claim 3 (Currently Amended): A plasma processing unit according to claim 1, wherein the ~~length of the~~ transmission line has a length which is shorter than $3\lambda/4$, λ being a wavelength of ~~the~~ a third harmonic wave of the first high-frequency electric power, and with respect to the third harmonic wave of the first high-frequency electric power, an output terminal of the high-frequency electric power source is an electrically short-circuited end and an input terminal of the first matching unit is an electrically open end.

Claim 4 (Currently Amended): A plasma processing unit according to claim 1, wherein the first high-frequency electric power source includes: a first high-frequency electric power generating part that generates the first high-frequency electric power when direct-current power is supplied thereto, and a filter that selectively allows the first high-frequency electric power from the first high-frequency electric power generating part to pass therethrough~~, and the filter has an output terminal connected to the transmission line as an electrically short-circuited end with respect to the third harmonic wave of the high-frequency electric power~~.

Claim 5 (Currently Amended): A plasma processing unit according to claim 4, wherein the first high-frequency electric power source further includes a circulator that allows a forward wave from the first high-frequency electric power generating part to pass therethrough and that absorbs a reflected wave from the first matching unit, between the first high-frequency electric power generating part and the filter.

Claim 6 (Original): A plasma processing unit according to claim 1, wherein the transmission line consists of a coaxial cable.

Claim 7 (Currently Amended): A plasma processing unit according to claim 1, wherein the first frequency ~~of the high-frequency electric power~~ is not less than 70 MHz.

Claim 8 (Original): A plasma processing unit according to claim 1, wherein a second electrode is arranged in the processing container in parallel with and opposed to the first electrode.

Claim 9 (Original): A plasma processing unit according to claim 8, wherein the substrate to be processed is adapted to be placed on the first electrode, and a vent hole is provided in the second electrode to jet out the process gas toward the first electrode.

Claim 10 (Canceled)

Claim 11 (Currently Amended): A high-frequency electric power supplying unit ~~that supplies high-frequency electric power having a frequency in a VHF band to a first electrode arranged in a processing container whose inner pressure can be reduced~~, comprising:

a first high-frequency electric power source that outputs first ~~the~~ high-frequency electric power having a first frequency,

a first matching unit ~~electrically connected to the high-frequency electric power source and the first electrode~~ for impedance matching of the first frequency, and

a transmission line that transmits the first high-frequency electric power from the first high-frequency electric power source to the first matching unit, wherein:

~~the transmission line has a length shorter than a length wherein a resonance state of a third harmonic wave of the high-frequency electric power ray be generated~~

the high-frequency electric power supplying unit is arranged in a space and further arranged for a plasma processing unit, the plasma processing unit including:

a processing container whose inner pressure can be reduced;

a first electrode arranged in the processing container, for placing a substrate to be processed thereon;

a process gas supplying unit that supplies a process gas into the processing container; and

a tubular supporting part forming the space together with the first electrode;

wherein the first high-frequency electric power transmitted from the first high-frequency electric power source to the first electrode is adapted to generate plasma in such a manner that the substrate to be processed can undergo a plasma process by means of the plasma.

Claim 12 (Withdrawn): A high-frequency electric power supplying unit according to claim 11, wherein the length of the transmission line is shorter than $\lambda/2$, λ being a wavelength of the third harmonic wave of the high-frequency electric power, and with respect to the third harmonic wave of the high-frequency electric power, an output terminal of the high-frequency electric power source and an input terminal of the matching unit are electrically short-circuited ends, respectively.

Claim 13 (Currently Amended): A high-frequency electric power supplying unit according to claim 11, wherein ~~the length of~~ the transmission line has a length which is shorter than $3\lambda/4$, λ being a wavelength of ~~the third~~ a harmonic wave of the first high-frequency electric power, and with respect to the third harmonic wave of the first high-frequency electric power, an

output terminal of the first high-frequency electric power source is an electrically short-circuited end and an input terminal of the first matching unit is an electrically open end.

Claim 14 (Currently Amended): A high-frequency electric power supplying unit according to claim 11, wherein the first high-frequency electric power source includes: a first high-frequency electric power generating part that generates the first high-frequency electric power when direct-current power is supplied thereto, and a filter that selectively allows the first high-frequency electric power from the first high-frequency electric power generating part to pass therethrough~~, and the filter has an output terminal connected to the transmission line as an electrically short-circuited end with respect to the third harmonic wave of the high-frequency electric power~~.

Claim 15 (Currently Amended): A high-frequency electric power supplying unit according to claim 14, wherein the first high-frequency electric power source further includes a circulator that allows a forward wave from the first high-frequency electric power generating part to pass therethrough and that absorbs a reflected wave from the first matching unit, between the first high-frequency electric power generating part and the filter.

Claim 16 (Currently Amended): A high-frequency electric power supplying unit according to claim 15, wherein the first high-frequency electric power generating part is connected via a cable to a direct-current power source that converts alternating-current power of commercial frequency into the direct-current power.

Claim 17 (Original): A high-frequency electric power supplying unit according to claim 11, wherein the transmission line consists of a coaxial cable.

Claim 18 (Currently Amended): A high-frequency electric power supplying unit according to claim 11, wherein the first frequency ~~of the high-frequency electric power~~ is not less than 70 MHz.

Claim 19 (New): A plasma processing unit according to claim 1, wherein the filter has an output terminal connected to the transmission line as an electrically short-circuited end with respect to a harmonic wave of the first high-frequency electric power.

Claim 20 (New): A plasma processing unit according to claim 1, wherein the first high-frequency electric power and a second high-frequency electric power having a second frequency are adapted to be transmitted to the first electrode, and the high-frequency electric power supplying part further includes a second matching unit for impedance matching of the second frequency.

Claim 21 (New): A plasma processing unit according to claim 20, wherein the high-frequency electric power supplying part has three vertically-stacked boxes; and the first high-frequency electric power source, the first matching unit and the second matching unit are contained in the three boxes, respectively.

Claim 22 (New): A high-frequency electric power supplying unit according to claim 11, wherein the filter has an output terminal connected to the transmission line as an electrically short-circuited end with respect to a harmonic wave of the first high-frequency electric power.

Claim 23 (New): A high-frequency electric power supplying unit according to claim 11, wherein the first high-frequency electric power and a second high-frequency electric power having a second frequency are adapted to be transmitted to the first electrode, and the high-frequency electric power supplying part further includes a second matching unit for impedance matching of the second frequency.

Claim 24 (New): A high-frequency electric power supplying unit according to claim 23, wherein the high-frequency electric power supplying part has three vertically stacked boxes; and

the first high-frequency electric power source, the first matching unit and the second matching unit are contained in the three boxes, respectively.